## AMENDMENTS TO THE CLAIMS

1-14. (Cancelled).

15. (Currently Amended) ~~In a substrate having a light-receiving edge and a plurality of spots containing specific binding complements to one or more target analytes, at least one of the spots is a test spot for metallic nanoparticles complexed thereto in the presence of one or more target analytes, another spot is a control spot or a second test spot for metallic nanoparticles, with or without signal amplification, complexed thereto in the presence of a second or more target analytes, a~~ A method for detecting the presence or absence of the one or more of the target analytes in the test spot, the method comprising the steps of:

illuminating [[the]] a light-receiving edge of [[the]] a substrate to create total internal reflection within the substrate to illuminate [[the]] a surface of the substrate, the substrate having a plurality of spots containing specific binding complements to the one or more target analytes, the plurality of spots including the test spot and a control spot, and each of the test and control spots containing metallic nanoparticle complexes in which the metallic nanoparticles have been complexed in the presence of one or more target analytes;

determining an optimal exposure time to assist in the detection of spots;

acquiring multiple images of the test spot and the control ~~or second test~~ spot, the multiple images being taken at different exposures by varying at least one parameter that controls a sensor used to detect spots, and at least one of the multiple images being taken at the optimal exposure time; and



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determining the presence of said metallic nanoparticle complexes in the test spot as an indication of the presence of one or more of the target analytes based on the acquired multiple images of the spots.

16. (Currently Amended) The method of claim 15, wherein the control spot is selected from the group consisting of metallic nanoparticles ~~nanoparticle~~ conjugated directly to the substrate via a nucleic capture strand, metallic nanoparticles printed directly on the substrate, and a positive result of metallic nanoparticles complexed to a known analyte placed in a separate well.

17. (Currently Amended) The method of claim 15, wherein the test spot is a test sample of [[is a]] nucleic acid from a wildtype nucleic acid sequence; and wherein the control spot is a control ~~comparison~~ sample [[is a]] of nucleic acid from a mutant nucleic acid sequence that is related to the wildtype nucleic acid sequence.

18. (Currently Amended) The method of claim 15, wherein the substrate includes a plurality of wells, at least one of the wells containing the test and control spots, ~~comparison spots;~~ determining an optimal exposure time comprises

~~further comprising the step of~~ determining an optimal exposure time for the well; ~~and wherein~~ acquiring at least one image ~~the images acquired are taken~~ at the optimal exposure time and acquiring at least another image ~~at least one exposure time which is~~ less than the optimal exposure time; and

using the optimal exposure time to acquire an optimal image.



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19. (Currently Amended) The method of [[claim 18]] claim 15, wherein ~~the step of~~ determining an optimal exposure time comprises determining an exposure time which results in a predetermined saturation of the image acquired.

20. (Currently Amended) The method of claim 15, wherein ~~the step of~~ determining the presence of said metallic nanoparticle complexes in the test spot containing [[the]] a test sample comprises:

performing regression analysis on the portions in the multiple images containing the test and control ~~comparison~~ spots to generate functions of exposure time versus intensity for each of the spots;

selecting an optimal exposure time;

determining intensity for the test and control spots for the optimal exposure time based on the functions generated; and

determining whether the test spot containing the test sample contains metallic nanoparticle complexes based on comparing the intensity of the test spot with the intensity of the control ~~comparison~~ spot at the optimal exposure time.

21. (Currently Amended) The method of claim 20, wherein each of the multiple images ~~the image acquired results in~~ has pixels assigned for the ~~comparison~~ control and test spots, the pixels having pixel values; wherein the step of performing a regression analysis comprises performing a regression analysis on the pixel values in the ~~comparison~~ control and test spots.



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22. (Currently Amended) The method of claim 21, wherein ~~the step of~~ selecting an optimal exposure time comprises determining an exposure time which results in a predetermined saturation of a portion of the image acquired which contains the test and ~~comparison~~ control spots.

23. (Currently Amended) The method of claim 22, wherein ~~the step of~~ determining intensity for the test and ~~comparison~~ control spots for the optimal exposure time based on the ~~functions~~ generated functions comprises interpolating or ~~extrapolated~~ extrapolating the functions generated.

24. (Currently Amended) The method of claim 23, wherein ~~the step of~~ comparing the intensity of the test spot with the intensity of the control spot at the optimal exposure time comprises performing statistical analyses on the intensity of the ~~comparison~~ control and test spots to determine if the intensity of the test spot is similar or dissimilar to the ~~comparison~~ control spot.

25. (Currently Amended) The method of claim 24, wherein ~~the step of~~ performing statistical analyses comprises performing differences between means testing.

26-38. (Cancelled).



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39. (New) The method of claim 15, wherein at least one parameter that controls a sensor used to detect the spots is selected from the group consisting of exposure time and sensor gain.



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